John A. Lindquist Microbiology of Carnivorous Plants.
This talk centered on the microorganisms and their identification as isolated from the pitcher liquor of Sarracenia purpurea in Wisconsin. Among the varied number of organisms (see list in CPN IV, (4), 65, 1975), the presence of the nitrogen-fixing organism Klebsiella was identified but no actual fixation of nitrogen could be detected. Yeasts, molds, algae, protozoa and rotifers were also observed.

Larry E. DeBuhr Phylogenetic Relationships of Sarraceniaceae.
On the family level, the speaker presented evidence that the pitcher plant family Sarraceniaceae is most closely related to the Theales rather than the other carnivorous plant families such as Droseraceae and Nepentheaceae.

Joseph A. Mazrimas Horticultural Aspects of Carnivorous Plants.
A review of the many plant species in cultivation was shown and the significant research results were discussed in relation to seed germination, pollination and various growing mediums for propagation of the rare species of CP.

MICHAEL HOMICK noted an aberrant flower in one of his Drosera rotundifolia. The sepals opened but the petals did not until a day or two later when a plantlet forced its way up between the petals. The leaves of the plantlet form domes at the outer ends with stamens growing downward from the upper part of the dome. Tentacles secreting mucilage grow on the petiole, and some glands were also noted on the sepals.

PHILIP SHERIDAN (5729 S. 2nd Street, Arlington, VA 22204) is looking for a commercial source of live, green sphagnum in quantity.

SHORT NOTES

PEAT, PEAT AND REPEAT
by Donald Schnell

The relative value of each of three kinds of "peat" most frequently used by CP growers in their peat-sand mixes--that is, Canadian, German and Michigan peats--has often been discussed in anecdotal terms, each side for each peat often taking very firm stands leading to much confusion. My own impression of the sum and total of these discussions is that very few people recommend using Michigan peat, claiming it is "too rich" and of the wrong physical texture for good CP culture. There are strong adherents to German peat who particularly acclaim a good texture, little breakdown over a year or more of use, minimal surface algal growth and stronger growth in plants transplanted into the material. Users of Canadian peat suggest that the latter is an equivalent of the imported material and see no difference in using either one.

While no simple project is going to completely resolve the question of which peat--if indeed any of these--is best for growing CP, we felt that some basic chemical test results thrown into the hopper of discord might offer some useful information. We used standard quantitative and semi-quantitative (the latter especially with trace elements) soil analysis methods, not to be confused with the little three element kits available in garden shops. Canadian peat studied was 'Premier' brand; German, an unknown import supplied to us by Rich Sivertsen; and Michigan peat was 'Singing Hills' brand. Following are physical and analytical observations:

Canadian peat--In dry state, a pale brown, fibrous moderately course material with an aromatic odor. Larger fragments of twigs and roots are mixed throughout the material. Occasional mats of peat are noted which require breaking up prior to mixing. Wet, the peat becomes noticeably darker and the fibrous texture softens; the aromatic odor intensifies.

German peat--In dry state, still lighter brown than the preceding with a coarser fibrous texture and fewer larger twigs and roots. Odor was also aromatic but of a different character. There was much more matting of this peat. Wet, the peat did not darken as much as the preceding nor did the fibrous texture soften as much. Interestingly, during our extraction procedure for chemical analysis, we noted that German peat absorbed 20% more liquid than did Canadian peat.

Michigan peat--In a dry state, a silty black material with an "earthy" odor--fibrous structure very weak. Occasional larger twigs and roots also found; little or no matting. Wet, the peat took on the character of muck or wet silt with no structure.

Differential chemical analysis--The following comparative chart is the result of our analysis:

	Canadian	German	Michigan
pH	4.2	4.4	5.2
Nitrate nitrog.	0	0	20
Phosphorus	15	10	25
Potassium	12	18	12
Calcium	20	20	5500*
Ammonia nitrog.	2	2	2
Magnesium	20	20	20
Manganese	0	0	0
Aluminum	0	0	0
Nitrite nitrog.	0	0	0
Ferric iron	0	0	0
Sulfate	0	0	0
Chloride	6	10	4

Except for pH, numerical values are in PPM.

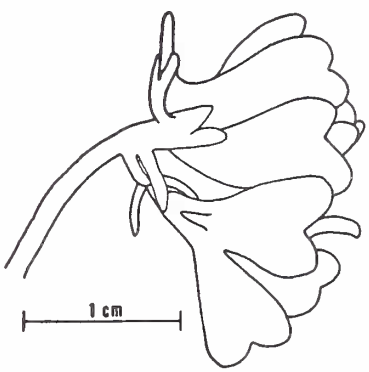
We hesitate to interpret these results too closely since many of the differences are not chemically significant. Our pH method is quite sensitive and obviously Canadian and German peats are more acid than Michigan. Michigan peat is indeed "richer" in the usual horticultural sense in that higher levels of nitrogen (nitrate) and phosphorus are present. Very startling was the large quantity of calcium in Michigan peat; we checked this result with several repeats (no pun intended). We feel that the increased level of potassium in German peat is of borderline significance, but may be of importance in light of current concepts of the function of potassium in certain physiologic processes.

A word of caution: First, sampling is limited since only material from a single batch or bag was used. Secondly, we can only speak for the elements analyzed; there may be many others which in trace amounts could be important, some such as copper, boron and zinc, and others as yet undefined regarding their rolls in plant physiology.

NOTES ON ABNORMAL FLORAL DEVELOPMENT IN PINGUICULA

by Landon T. Ross

Based on some recent casual observations, abnormal floral development would seem to be rather common in Pinguicula. During a field investigation in Liberty Co., Florida, in February, 1976, flowers were examined in a mixed colony of Pinguicula planifolia and P. ionantha. About twenty specimens of each species were observed and two unusual flowers were noted.



One small individual of P. planifolia (rosette diameter 5.8 cm.), with a single scape, had a small flower (expanded corolla 21 mm. in diameter) with seven corolla lobes and with the calyx lips both three cleft. There are typically five corolla lobes in Pinguicula and the lower calyx lobe is usually two cleft. Other than the multiple perianth parts, the flower was entirely normal.

A moderate sized specimen of P. ionantha (rosette diameter 9.3 cm.) was considerably more unusual. It had three scapes, two of which had normal flowers. The third scape was terminated by two flowers with more or less fused calyces (see illustration). The uppermost flower was not unusual anatomically although it was rotated about 80° counter-clockwise from the usual position, with the spur thus being directed to the right when the corolla was viewed from the front. The lower, second flower was considerably modified. Three relatively well developed spurs were present as well as two short processes on the corolla tube which appeared to be incompletely developed spurs. Two palates were also observed on alternate corolla lobes; one slightly smaller than usual, and the other only about one-quarter of the normal size. Finally, the second flower was sterile, both male and female organs being absent.